

SYSTEM AUDIT REPORT NUMBER 01/35812/S08/SP01



THIS REPORT RELATES TO Surveillance

VISIT ON 11/28-29/01

Company NASA, George C, Marshall Space Flight Center

Other Sites Visited

1.

Address Marshall Space Flight Center Alabama

2.

**Scope:** All Products and Services Provided by the Marshall Space Flight Center. MSFC Supports the NASA Agency infrastructure and is a major contributor to all its scientific and technical enterprises.

Standard(s) 9001:2000

Support Documentation(s)

Non-English Languages Used

**Comments/Concerns of the Assessment Team:**

Previously identified observations have been adequately addressed or written herein.  
Recommended registration to ISO 9001:2000.

- The visit is deemed to be

Satisfactory

- Unsatisfactory visits may result in a change to the next audit activity.

**Corrective Action Plan (CAP) Instructions:**

- ☒ Return CAP in 20 working days (all NCs & QS-9000 Ois).
- Certificate processing initiates after receipt/acceptance of CAPs.
- QS-9000 Ncss must be cleared prior to certificate issuance.
- ☐ Return CAP in ten days for major NCs issued during surveillance.

**NQA ASSESSMENT TEAM**

LEAD AUDITOR Rick Giguere

TEAM Joe Grieco

TEAM

TEAM

TEAM

**COMPANY INFORMATION**

MGT REP Axel Roth

QUALITY MANUAL (REV &amp; ISSUE DATE)

MPD 1280.1 Rev H 11/2/01

The contents of this report is confidential and must not be disclosed to a third party without prior agreement of NQA, USA and the company named above.

Non-compliances/non-conformances raised or observations noted within this report are the result of limited sampling and therefore non-compliances/non-conformances may exist which have not been identified.

The company representative's signature indicates their agreement and understanding of any non-compliances/non-conformances and observations contained in this report.

Prior to the assessment, the company must have completed a complete system internal audit and subsequent management review documented. The quality system shall be understood throughout the organization.

Signature Richard Giguere  
NQA, USA Representative

Date

Signature Axel Roth  
Company Representative

Date

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## SYSTEM REVISION STATUS AND AUDIT MATRIX

X or ✓ indicates reference point for assessment. Note: X or ✓ through entire box as applicable to indicate actual function/process audited against ISO 9001:2000 requirement.

Note: Asterisk (\*) indicates element to be reviewed at each activity.

			SPECIFIC ISO 9001:2000 REQUIREMENTS FUNCTIONS/PROCESSES AUDITED DURING THIS VISIT														NEXT VISIT PLAN
			DE 01	AD 33	HE 11	CD 40	AD 40	AD 01	CD 01	QS 40	CD 10	UL C1	AD 22	PS 10	EC LS S	QS 10	
NQA 26	ISO 9001:2000 Ref	Element Title															
1*	4.2.1 & 4.2.2*	Quality Manual *	✓	✓													✓
2	4.2.3	Document Control		✓													
3	4.2.4	Quality Records		✓													
4	4.2, 5.1, 5.2, 5.3, 5.4.2, 5.5	Management Activities	X				✓	✓									
5*	5.4.1*	Quality Objectives*	✓			✓	✓			✓	✓						✓
6*	5.6*	Management Review *	✓						✓	✓							✓
7	6.1 & 6.2	Resources & Competence	✓								✓						✓
8	6.3 & 6.4	Infrastructure & Work Environment										✓	✓	✓	✓	✓	
9	7.1	Product Realization Planning										✓					
10	7.2	Customer Related Process & Communication									✓						
11	7.3	Design & Development											✓				
12	7.4	Purchasing												✓			
13	7.5.1 & 7.5.3	Process Provision and ID&T Activities															
14	7.5.2	Process Validation															
15	7.5.4	Customer Property										✓	✓	✓			✓
16	7.5.5	Handling, Preservation, Storage & Delivery															✓
17	7.6	Calibration															✓
18	8.1	Measurement & Monitoring Planning															✓
19*	8.2.1*	Customer Satisfaction*	✓			✓		✓		✓							✓
20*	8.2.2*	Internal Audits*								✓							✓
21	8.2.3	Measurement & Monitoring of Process													✓		✓
22	8.2.4	Measurement & Monitoring of Product															✓
23	8.3	Non-Conforming Processes/Products														✓	
24	8.4	Analysis of Data			✓		✓		✓								
25*	8.5.1*	Continuous Improvement*	✓		✓				✓								✓
26*	8.5.2 & 8.5.3*	Corrective/Preventive* Action			✓												✓
Use of NQA Logo																	

Note: Please fill in table including areas/sites/departments/functions visited during each visit.

## AUDIT RECORD

ISO 9000  
CLAUSES Applicable  
Standard

Non Compliances  
Or Observations

Auditor(s) Rick Giguere

Joe Grieco

6.1, 6.2 9001:2000

Reviewed methods for determining competency requirements as per NPG 3430.1, and subsequent actions taken to satisfy those needs, methods used to evaluate actions taken. Also reviewed personnel awareness of relevance and importance of their activities to achievement of quality objectives. Sampled performance appraisal records from 5 organizations (SD60, SD43, SD44, MP21, ED 50, as evidence of evaluation of competencies.

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5.1, 5.2, 5.3, 5.4 9001:2000

Reviewed top management commitment as evidenced by implementation of the qms and continual improvement of its effectiveness. Included a review of established quality objectives, the enhancement of customer satisfaction, and establishment of a quality policy that also includes a commitment to comply with requirements and continually improve effectiveness of the qms.  
Reviewed quality objectives as defined in MPD 1280.1 for deployment at relevant functions and levels of the organization and for measurability and consistency with the quality policy.

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4.1, 4.2.1 9001:2000

Reviewed defined quality management system for distinctives regarding 9000:2000 requirements including determination of sequence and interaction of processes, and the implementation of actions to achieve planned results and continual improvement. Reference MPD 1280.1. Also included a review of outsourced activities and associated controls. Also reviewed defined quality policy and objectives.

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4.2.2, 4.2.3 9001:2000

Reviewed quality manual changes since last audit, particularly as they relate to the 9000:2000 requirements. Evaluated scope and exclusions taken of which there were none. Included a review of the description of the interaction between the processes of the qms.  
Evaluated review and approval process of procedures and work instructions along with distribution of electronic versions, control and access of documents at point of use.

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8.2.2 9001:2000

Reviewed internal audit process for scheduled activities, auditor independence and training, audit preparation, records and processing noncompliances as per MPG 1280.6. Sampled audit #'s MC 09200101, QS02200101, associated NCR's

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Joe Grieco

8.2.1 9001:2000

Reviewed methods in place for determining levels of customer satisfaction as defined in MPG 1280.8, Customer satisfaction and MWI1280.2, Customer Feedback System. Included use of customer surveys/employees surveys, compiled survey results dated 6/00. Visited organizations AD01, CD 40.

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4.2.4 9001:2000

Reviewed the control of records as defined in MPG 1440.2, MFSC Records Management Program. Included an assortment of records for review including design records, management review, RCAR, DR's, QSDN's, internal audits, customer feedback, contract review records, procurement, and preventive action records. Assessed identification, storage, protection, retrieval, retention times and disposition.

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8.2.3 ISO 9001

Interviewed the Manager or ECLSS, & ACM Specialist, discussed Process Control, Statistical Techniques and how they relate to Process Control, and the Measurement of Processes. Reviewed MPG 1280.2 Revision D, Process Control. Reviewed the Monthly/Quarterly ISS Node 3 Regenerative ECLSS Status Report, Verifying Tracking, Trending, Risk Management, including Contingency Plans, Mitigation Plans & Historical Events/Status Reports. Verified last 2 ECLSS System Quality Changes ECR ED-2280, PCN WR00610 and ECR FD21-0251, PCN WR00141.

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7.2 ISO 9001

Interviewed Project Managers for Projects POIC & ULCI, Discussed how the organization determines, Statutory and Regulatory requirements, and any additional requirements not stated by the Customer, but determined necessary by the organization. Assessed International Space Station Program, reviewed the ICD-B Flight Safety process. Any statutory, regulatory or additional required requirements missed in the Initial Design Review will be added during the Critical Design Review, prior to development. Sampled Minutes of Reviews, verifying action items being tracked to conclusion.

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6.3 ISO 9002

Assessed MSFC Infrastructure through out this Assessment. Assessed ISTAR Engine Demonstrator Project and the Pay load Carriers Integration program, Reviewed the contracts and the Statement of Work J-1. The SOW's contains the Infrastructure needed to achieve conformity to product requirements and satisfy Requirement 6.3.

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ISO 9000  
CLAUSES Applicable  
Standard

## AUDIT RECORD

Non Compliances  
Or Observations

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7.3 ISO 9001

Interviewed the Deputy Manager of Facilities Engineering Department & the Team Lead of Civil/Structural Design Team & the Center Structural Representative for ISO. Reviewed MPG 8823.1 Design Control of Facilities for determining what buildings must comply with, and OI's used to support the MPG. Process includes Design Requirements Verification, Validation and Change Management. Interviewed Team Lead, special Test Equipment and Design Group. Reviewed MPG 8060.2 Non-Flight and Non-Facility Design and Development. Assessed drawings for the SRB Separation Bolt Test Frame. Aft Bolt Assembly, drawing number 90M11467. There is a STE Design Group Support Request form which gets submitted to start the design process, the form often contains either the requirements or the Point of Contact to get them, some/most of the Design I/P's are received by phone or e-mail, meetings are then held with the requester who must sign off on the drawings to verify the design meets the requirements. After the design is signed off an ATP (Authority to proceed) is needed to continue with the development.

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8.3 ISO 9001

Interviewed Inspection Team Lead for QS10, MRB Hold Area, Electrical Fabrication Shop Area, & the Electrical Parts Test Lab.. Reviewed MPG 8730.3 Revision C "Control of Nonconforming Product", and MWI 8730.3 Revision A "MSFC Material Review System". Discussed the handling, storage and Disposition of Nonconforming Product. Sampled in the Material Review Crib DR's 7012, 7026 & 7027, In MRB Hold Area, DR 7031 G-Limit Assembly, In the Electrical Fabrication Shop DR 7035 Well Cable, In Test Lab DR 6974 DC/DC Converter assembly.

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7.4 ISO 9001

Interviewed the Deputy Director of Procurement & the Manager Space Transportation Support Department, Reviewed MPG 5000.1 Rev C Purchasing, OWI-08 Rev F Vendor Sources & Past Performance Data & OWI-05 Signature Authority. Discussed the selection, evaluation and re-evaluation of Vendors, Approval Authority and Verification of Purchase Product. Sampled Purchase Orders H33169D, Vendor 54925, Cage 6L169, P.O. H34684D, Vendor 55908, Cage 00xz1 and P.O. 01098, Vendor 10860, Verifying Approved Vendor, and Correct Level of Authorization.

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8.4, 8.5.1 9001:2000

Reviewed methods for collecting and analyzing data to demonstrate the suitability and effectiveness of the quality system and identify areas of improvement. Sampled management positions in AD 40, AD01, and HEI. Reviewed identified metrics at Directorate and department levels. Reviewed relationship of improvement activities to policy and objectives. Reference MPG 1280.9, Continual Improvement.

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Joe Grieco

6.4 ISO 9001

Assessed buildings and work space environment needed to achieve conformity to product requirements, in all areas visited during this Audit.

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8.5.2, 8.5.3 9001:2000

Reviewed corrective and preventive activities as defined in MPD 1280.1 and MPG 1280.4. Reviewed GIDEP Alerts, #7446, RCAR #176, 177, QSDN # 125. Evaluated root cause analysis, actions taken and verification activities. Also reviewed preventive actions as per Risk management Plan, ECLSS, FD21-001.

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5.5, 5.6 9001:2000

Interviewed management Representative to ensure the promotion of awareness of customer requirements throughout the organization, and evidence of improvement activities, as noted in management review meeting minutes. Discussed methods used to communicate the effectiveness of the quality system, via web site metrics, and assorted team meetings. Reviewed management review meeting minutes dated 11/6/01 for adequate reporting of the suitability and effectiveness of the quality system. Review included results of audits, customer feedback, process performance measures and product conformity metrics, status of corrective and preventive actions, follow-up actions and improvement measures.

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7.5.4 ISO 9001

The only Customer Property, I came across, was Intellectual property. Mentioned in Contract NAS8-44000. This organization is primarily a service organization that don't take custody of customer hardware, it is turned over to the Cape.

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Total

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## NON-CONFORMANCE AND OBSERVATIONS/OPPORTUNITIES FOR IMPROVEMENT RAISED

NC/OBS/OI

Ref No.	Clause No.	Applicable Standard		
1	5.4.1	9001:2000	Additional quality objectives used to assess the health of the MMS and to identify opportunities for improvement are identified in MPD1280.1. Item C, Detect nonconformances and take corrective action, includes no metric or measure of performance. Furthermore it's value as a measure of performance is questionable since increases or decreases by themselves do not necessarily indicate improvement or degradation.	NC
2	8.2.1	9001:2000	A review of customer satisfaction measures throughout the organization reveals inconsistencies in implementation. Certain directorates have not obtained sufficient data with which to make clear determinations of customer perception of performance. Reference CaER.	NC
3	5.4.1	9001:2000	Reference NQA audit report 01/35812/PRA01, item #4. The MSFC Implementation plan identifies a broad landscape of objectives that span the organization, but it is unclear as to the depth that these objectives are employed throughout the organization to the extent that individuals would understand their contribution to established objectives.	O

Signed for NQA

Signed for Company

  
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